

WHAT IS CLAIMED IS:

1. A brake pedal apparatus comprising
5 a pedal arm assembly having a first pedal arm connected to a vehicle body,
and a second pedal arm with an upper end rotatably connected to a lower end of the
first pedal arm and a lower end provided with a pad to that receives a load;
a driving part configured to generate torque for selectively holding the
second pedal arm with respect to the first pedal arm; and
10 a controller controlling the driving part.
2. The apparatus of claim 1, wherein the driving part comprises:
an electromagnet provided to the lower end of the first pedal arm;
a permanent magnet provided to the upper end of the second pedal arm with
15 a pole opposite to that of the electromagnet;
a supporting part fixed to the lower end of the first pedal arm;
a piston provided to the lower end of the first pedal arm to rotate the second
pedal arm forward by pressure therefrom;
a spring interposed between the supporting part and the piston for moving
20 the piston; and
a solenoid switch connecting or disconnecting an electric current supplied to
the electromagnet.

3. The apparatus of claim 2, further comprising:

a first sensor for detecting an impact to the front of the vehicle; and

a second sensor mounted on the pad for determining contact between the pad
and a driver's foot, wherein the controller controls the driving part based on the

5 signals from the first sensor and the second sensor.

4. The apparatus of claim 3, wherein:

the controller turns off the solenoid switch when an impact to the front of the
vehicle is detected while contact between the pad and the driver's foot is not

10 detected; and

the controller turns on the solenoid switch if an impact to the front of the
vehicle is not detected, or if contact between the pad and driver's foot is detected.

5. The apparatus of claim 3, wherein the second sensor is a photo diode.

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6. A brake pedal, comprising:

a controller;

at least one sensor communicating with said controller; said sensor
generating a signal in response to an impact;

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a brake pedal assembly including first and second pivotably linked arms; and

a linkage operatively joining said first and second arms, said linkage

responsive to the controller to selectively rigidly link or permit pivoting between said

arms in response to said signal from said sensor.

7. The apparatus of claim 6, wherein said linkage comprises:

an electromagnet provided to the lower end of the first pedal arm;

5 a permanent magnet provided to the upper end of the second pedal arm with
a pole opposite to that of the electromagnet;

a supporting part fixed to the lower end of the first pedal arm;

a piston provided to the lower end of the first pedal arm to rotate the second
pedal arm forward by pressure therefrom;

10 a spring interposed between the supporting part and the piston for moving
the piston; and

a solenoid switch connecting or disconnecting an electric current supplied to
the electromagnet.